Limited accuracy of the SAFT^{90} to adequately replicate soccer-specific match demands

Jamie Salter, Matthew Weston, Richard Cresswell and Dale Forsdyke

York St John University

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Background

- There is currently a lack of evidence to support RtS decisions and what '*readiness*' looks like for a player (Drust *et al*, 2014; Fanchini *et al,* 2018)
- Practitioners often aim to replicate the cognitive, physiological and biomechanical match demands utilising various approaches (e.g. SSG, conditioning drills and laboratory controlled tests) depending on specific targets
- A range of soccer match-play simulations have been used within both applied and research environments to mimic match demands
  - Ecological validity of these simulations are questionable based on the variability, cognitive processing and situational factors involved in match-play performance. Caution should also be taken as these often replicate average demands which may increase the risk of re-injury as players will likely have to exceed these (Gabbett, 2016)
- SAFT^{90} was devised from a multi-camera, semi-automatic system (Prozone) from Championship match-play in 2007, includes 1269 changes in speed and 130 changes in direction and was validated with semi-professional footballers (n = 8; Lovell, Knapper & Small, 2008)
- To date, no evidence has reported the external locomotor metrics of SAFT^{90} in-light of technological advances in recent years

Available soccer match-play simulations

SAFT90
(Lovell, Knapper and Small, 2008)

Loughborough Intermittent Shuttle Test (LIST)
(Nicholas et al, 2000)

Soccer-specific treadmill protocol (Page et al, 2015)

Soccer match simulation (SMS)
(Russell, Rees, Benton, Kingsley, 2011)

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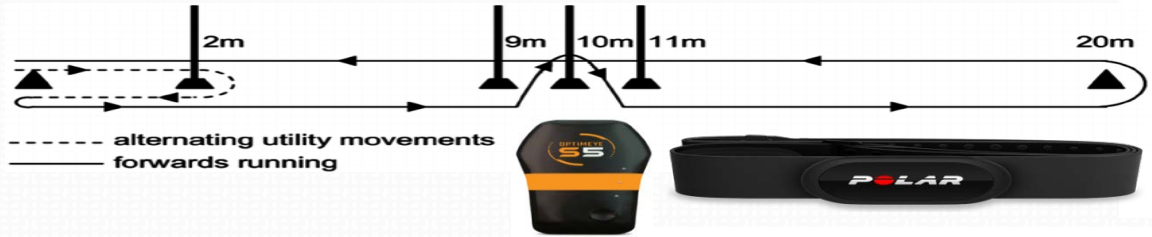
Experimental Approach

- 47 male international soccer players (Age 19.2 ± 0.9 yrs; Weight 73 ± 8.2 kg; Height 175.9 ± 5.8 cm)
- Soccer-specific Aerobic Field Test (6 x 15mins;15mins HT) – monitored by researchers throughout
- Catapult X5 (10Hz) utilised with excellent fidelity (mean 13.8 satellites and 0.59 HDOP) and Polar heart rate (HR) belt
- Magnitude Based Inferences approach to identify magnitude of differences (Hopkins, 2009)

Table 1. Speed zone thresholds (Small et al, 2008)

Speed Zone		Thresholds
1	Standing	0.0km.$^{h-1}$
2	Walking	5.0km.$^{h-1}$
3	Jogging	10.3km.$^{h-1}$
4	Striding	15.0km.$^{h-1}$
5	Sprinting	>20.4km.$^{h-1}$



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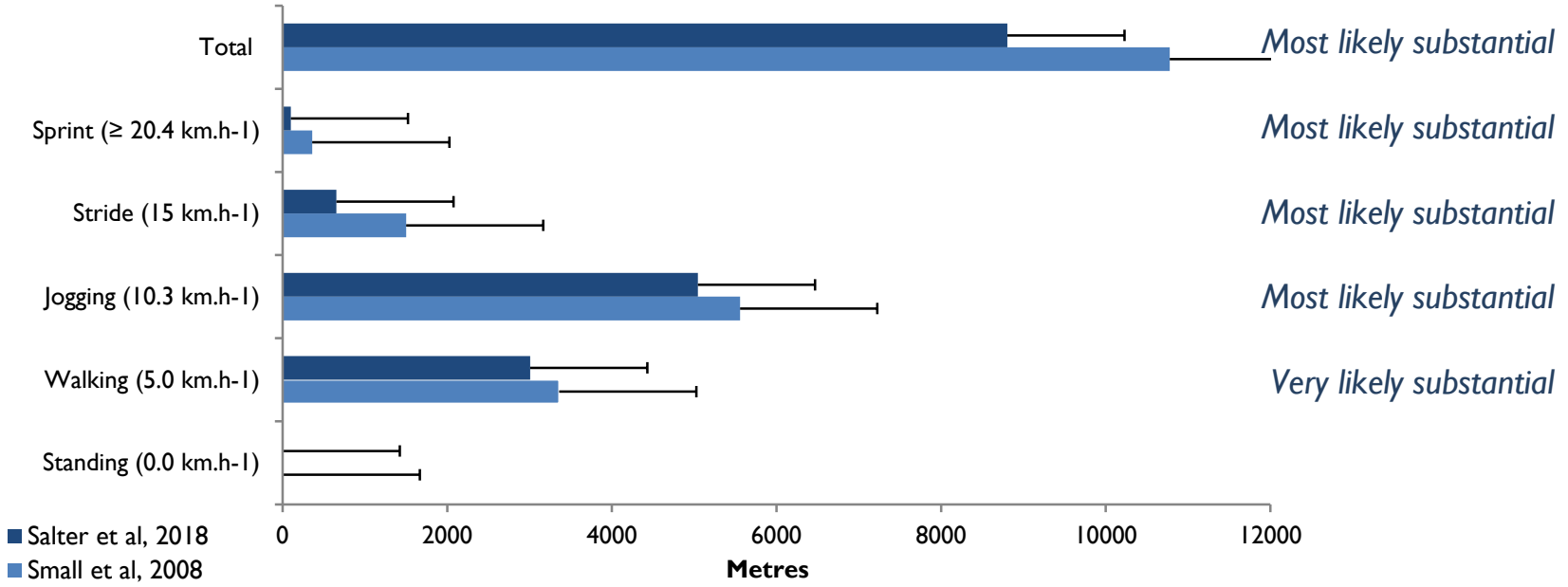
Analysis



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Take Home Messages

- There are *very-most likely substantial* differences between actual and reported distances covered on the SAFT^{90}, across all speed zones - outlining limited accuracy of the validation process of the simulation and a need for a revised approach to simulation

- The largest differences were at the highest speed zones, which agrees with previous comparisons between semi-automatic camera and GPS methods of analysis (Buchheit *et al,* 2014; Harley *et al*., 2011; Randers *et al*, 2010) – lowest speed zones do not appear to be collected (0-5km/h)

- *Likely substantial* differences observed for HR could be due to the simulation protocol, but also could be attributed to various other physiological factors (e.g. environmental considerations, participants training status, time of day)

- ***HOW*** athletes completes the SAFT^{90} varied dramatically between speed zones – although audio controlled test and monitored by staff, players adopt varied approaches to completing protocol, which may have implications for RtS

Practitioners should be considerate of how they apply SAFT90 during RtS – are you getting what you think?

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Thank You for listening

'Gracias por escuchar'

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